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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Patent Number	7,027,489
Issue Date	April 11, 2006
First Named Inventor	Pan et al.
Application Number	10/004,370
Filing Date	November 1, 2001
Attorney Docket Number	I-0187.1US

**ENCLOSURES (Check all that apply)**

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Fee Transmittal Form<br><input type="checkbox"/> Fee Attached<br><input type="checkbox"/> Amendment/Reply<br><input type="checkbox"/> After Final<br><input type="checkbox"/> Affidavits/declaration(s)<br><input type="checkbox"/> Extension of Time Request<br><input type="checkbox"/> Express Abandonment Request<br><input type="checkbox"/> Information Disclosure Statement<br><br><input type="checkbox"/> Certified Copy of Priority Document(s)<br><input type="checkbox"/> Reply to Missing Parts/ Incomplete Application<br><input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s)<br><input type="checkbox"/> Licensing-related Papers<br><input type="checkbox"/> Petition<br><input type="checkbox"/> Petition to Convert to a Provisional Application<br><input type="checkbox"/> Power of Attorney, Revocation<br>Change of Correspondence Address<br><input type="checkbox"/> Terminal Disclaimer<br><input type="checkbox"/> Request for Refund<br><input type="checkbox"/> CD, Number of CD(s) _____<br><input type="checkbox"/> Landscape Table on CD | <input type="checkbox"/> After Allowance Communication to TC<br><input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences<br><input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)<br><input type="checkbox"/> Proprietary Information<br><input type="checkbox"/> Status Letter<br><input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):<br>Request for Certificate of Correction and Form PTO/SB/44 |
|---|---|---|

Remarks

**Certificate  
OCT 13 2006  
of Correction****SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name	VOLPE AND KOENIG, P.C.		
Signature			
Printed name	Robert D. Leonard		
Date	October 6, 2006	Reg. No.	57,204

**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Robert D. Leonard	Date	October 6, 2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**OCT 16 2006**



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In the **PATENT** of:

Pan et al.

**Patent No.:** 7,027,489

**Issued:** April 11, 2006

**Appln. No.:** 10/004,370

**Filed:** November 1, 2001

For: ITERATIVE FAST FOURIER  
TRANSFORM ERROR CORRECTION

Our File: I-2-0187.1US

Date: October 6, 2006

**REQUEST FOR CERTIFICATE OF CORRECTION**

Certificate of Corrections Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

A Certificate of Correction under 35 U.S.C. §§ 254, 255 and 37 C.F.R. §§1.322, 1.323 is requested for U.S. Patent No. 7,027,489. Correction of the following errors is requested.

**ON THE FACE PAGE**

At section (56), OTHER PUBLICATIONS, page 1, right column, line 8, after  
"No. 2. pp.", delete "267-287" and insert therefor --276-287--

At section (56), OTHER PUBLICATIONS, page 1, right column, line 9, before  
the word "Klein", delete "Naja" and insert therefor --Anja--.

OCT 16 2006

At section (56), OTHER PUBLICATIONS, page 2, right column, line 1, before the word "Klein", delete "Ania" and insert therefor --Anja--.

At section (56), OTHER PUBLICATIONS, page 2, right column, line 5, after "H.R.", delete "Karmimi" and insert therefor --Karimi--.

At section (56), OTHER PUBLICATIONS, page 2, right column, line 10, after "SMG2", delete "Laver" and insert therefor --Layer--.

At section (56), OTHER PUBLICATIONS, page 2, right column, line 12, before the word "Finland", delete "Heisinki" and insert therefor --Helsinki--.

#### **IN THE ABSTRACT**

At section (57), ABSTRACT, page 1, right column, line 4, after the word "substantially", delete "a" and insert therefor --the--.

#### **IN THE DRAWINGS**

At FIG. 4, item 54, line 1, after the word "AND", delete "A" and insert therefor --AN--.

At FIG. 4, item 56, line 3, after the word "CIRCULANT", delete "APPOXIMATION" and insert therefor --APPROXIMATION--.

At FIG. 6, item 68, line 2, after the word "RESPONSES,", delete "DETERMIN" and insert therefor --DETERMINE--.

At FIG. 6, item 68, line 2, after the word "USING", delete "A" and insert therefor --AN--.

At FIG. 6, item 72, line 1, after "R<sub>cir</sub>", delete "A" and insert therefor --AN--.

At FIG. 6, item 74, line 3, after the word "CIRCULANT", delete "APPOXIMATION" and insert therefor --APPROXIMATION--.

At FIG. 7, item 82, line 2, after the word "USING", delete "A" and insert therefor --AN--.

At FIG. 7, item 86, line 1, after the word "AND", delete "A" and insert therefor --AN--.

At FIG. 7, item 88, line 3, after the word "CIRCULANT", delete "APPOXIMATION" and insert therefor --APPROXIMATION--.

### **IN THE SPECIFICATION**

At column 1, line 59, after the word "substantially", delete "a" and insert therefor --the--.

At column 2, line 4, before "FFT", delete "a" and insert therefor --an--.

At column 2, line 10, before "FFT", delete "a" and insert therefor --an--.

At column 2, line 12, before "FFT", delete "a" and insert therefor --an--.

At column 2, line 58, before "FFT", delete "a" and insert therefor --an--.

At column 3, line 24, after the word "received", delete "samples" and insert therefor --sample--.

At column 4, line 19, before "MMSE", delete "A" and insert therefor --An--.

At column 4, line 61, delete Equation 19, and insert therefor

$$-F(d) = \Lambda^{-1} F(A^H \underline{r})-$$

At column 6, line 35, before the word "used", insert --is--.

At column 6, line 63, before "MMSE", delete "a" and insert therefor --an--.

At column 7, line 1, delete Equation 37, and insert therefor  $-y = H^H \underline{r}-$ .

At column 7, line 46, delete Equation 42, and insert therefor

$$-\underline{s}^{(k+1)} = \underline{s}^{(k)} + \Delta_s^{(k)}, k=1, 2, \dots, N-1-$$

At column 7, line 55, before "MMSE", delete "a" and insert therefor --an--.

At column 7, line 60, before the words "and R", delete "y" and install therefor  
--y--.

At column 8, line 22, after the words "R and", delete "R<sub>bci<sup>p</sup></sub>" and insert  
therefor --R<sub>bci<sup>r</sup></sub>--.

At column 8, line 45, after the words "the last", delete "symbols" and insert  
therefor --symbol's--.

### IN THE CLAIMS

At claim 1, column 8, line 5, after the word "substantially", delete "a" and  
insert therefor --the--.

At claim 5, column 9, line 11, after the word "substantially", delete "a" and  
insert therefor --the--.

At claim 11, column 9, line 41, after the word "estimates", delete "is" and insert therefor --are--.

At claim 12, column 9, line 44, after the word "estimates", delete "is" and insert therefor --are--.

At claim 13, column 10, line 2, after the word "estimates", delete "is" and insert therefor --are--.

At claim 14, column 10, line 9, after the word "substantially", delete "a" and insert therefor --the--.

At claim 19, column 10, line 35, after the word "estimates", delete "is" and insert therefor --are--.

At claim 20, column 10, line 38, after the word "estimates", delete "is" and insert therefor --are--.

At claim 21, column 10, line 42, after the word "estimates", delete "is" and insert therefor --are--.

**Patentee:** Pan et al.  
**Patent No.:** 7,027,489

### REMARKS

Patentees believe that the above errors are of such a nature as to justify the issuance of a Certificate of Correction. Patentees have enclosed a completed Certificate of Correction Form PTO/SB/44.

Since at least one of the errors was caused by Applicants, please charge the surcharge fee of \$100.00 to the Deposit Account of InterDigital Communications Corporation, Deposit Account No. 09-0435.

Patentees respectfully request that the Certificate of Correction be issued.

Respectfully submitted,

Pan et al.

By



Robert D. Leonard  
Registration No. 57,204  
(215) 568-6400

Volpe and Koenig, P.C.  
United Plaza, Suite 1600  
30 South 17th Street  
Philadelphia, PA 19103

RDL/dcb

OCT 16 2008

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 1 of 8

PATENT NO. : 7,027,489

APPLICATION NO.: 10/004,370

ISSUE DATE : April 11, 2006

INVENTOR(S) : Pan et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**ON THE FACE PAGE**

At section (56), OTHER PUBLICATIONS, page 1, right column, line 8, after "No. 2. pp.", delete "267-287" and insert therefor --276-287--.

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Volpe and Koenig, P.C.  
United Plaza, Suite 1600  
30 South 17th Street  
Philadelphia, PA 19103

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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**OCT 16 2006**



**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 2 of 8

PATENT NO. : 7,027,489

APPLICATION NO.: 10/004,370

ISSUE DATE : April 11, 2006

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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 3 of 8

PATENT NO. : 7,027,489  
APPLICATION NO.: 10/004,370  
ISSUE DATE : April 11, 2006  
INVENTOR(S) : Pan et al.

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**IN THE DRAWINGS**

At FIG. 4, item 54, line 1, after the word "AND", delete "A" and insert therefor --AN--.

At FIG. 4, item 56, line 3, after the word "CIRCULANT", delete "APPOXIMATION" and insert therefor --APPROXIMATION--.

At FIG. 6, item 68, line 2, after the word "RESPONSES,", delete "DETERMIN" and insert therefor --DETERMINE--.

At FIG. 6, item 68, line 2, after the word "USING", delete "A" and insert therefor --AN--.

At FIG. 6, item 72, line 1, after "R<sub>cir</sub>", delete "A" and insert therefor --AN--.

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OCT 16 2006

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 4 of 8

PATENT NO. : 7,027,489

APPLICATION NO.: 10/004,370

ISSUE DATE : April 11, 2006

INVENTOR(S) : Pan et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At FIG. 6, item 74, line 3, after the word "CIRCULANT", delete "APPOXIMATION" and insert therefor --APPROXIMATION--.

At FIG. 7, item 82, line 2, after the word "USING", delete "A" and insert therefor --AN--.

At FIG. 7, item 86, line 1, after the word "AND", delete "A" and insert therefor --AN--.

At FIG. 7, item 88, line 3, after the word "CIRCULANT", delete "APPOXIMATION" and insert therefor --APPROXIMATION--.

**IN THE SPECIFICATION**

At column 1, line 59, after the word "substantially", delete "a" and insert therefor --the--.

At column 2, line 4, before "FFT", delete "a" and insert therefor --an--.

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## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 5 of 8

PATENT NO. : 7,027,489  
 APPLICATION NO.: 10/004,370  
 ISSUE DATE : April 11, 2006  
 INVENTOR(S) : Pan et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At column 2, line 10, before "FFT", delete "a" and insert therefor --an--.

At column 2, line 12, before "FFT", delete "a" and insert therefor --an--.

At column 2, line 58, before "FFT", delete "a" and insert therefor --an--.

At column 3, line 24, after the word "received", delete "samples" and insert therefor --sample--.

At column 4, line 19, before "MMSE", delete "A" and insert therefor --An--.

At column 4, line 61, delete Equation 19, and insert therefor -- $F(d) = \Lambda^{-1}F(A^H \underline{r})$ --.

At column 6, line 35, before the word "used", insert --is--.

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OCT 18 2006

## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 6 of 8

PATENT NO. : 7,027,489

APPLICATION NO.: 10/004,370

ISSUE DATE : April 11, 2006

INVENTOR(S) : Pan et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At column 6, line 63, before "MMSE", delete "a" and insert therefor --an--.

At column 7, line 1, delete Equation 37, and insert therefor  $--y = H^H r--$ .

At column 7, line 46, delete Equation 42, and insert therefor  $--\underline{s}^{(k+1)} = \underline{s}^{(k)} + \Delta_s^{(k)}, k=1, 2, \dots, N-1--$ .

At column 7, line 55, before "MMSE", delete "a" and insert therefor --an--.

At column 7, line 60, before the words "and R", delete "y" and install therefor  $--y--$ .

At column 8, line 22, after the words "R and", delete " $R_{bcip}$ " and insert therefor  $--R_{bcir}--$ .

At column 8, line 45, after the words "the last", delete "symbols" and insert therefor --symbol's--.

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OCT 16 2006

**UNITED STATES PATENT AND TRADEMARK OFFICE  
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PATENT NO. : 7,027,489  
APPLICATION NO.: 10/004,370  
ISSUE DATE : April 11, 2006  
INVENTOR(S) : Pan et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**IN THE CLAIMS**

At claim 1, column 8, line 5, after the word "substantially", delete "a" and insert therefor --the--.

At claim 5, column 9, line 11, after the word "substantially", delete "a" and insert therefor --the--.

At claim 11, column 9, line 41, after the word "estimates", delete "is" and insert therefor --are--.

At claim 12, column 9, line 44, after the word "estimates", delete "is" and insert therefor --are--.

At claim 13, column 10, line 2, after the word "estimates", delete "is" and insert therefor --are--.

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OCT 16 2005

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 8 of 8

PATENT NO. : 7,027,489

APPLICATION NO.: 10/004,370

ISSUE DATE : April 11, 2006

INVENTOR(S) : Pan et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At claim 14, column 10, line 9, after the word "substantially", delete "a" and insert therefor --the--.

At claim 19, column 10, line 35, after the word "estimates", delete "is" and insert therefor --are--.

At claim 20, column 10, line 38, after the word "estimates", delete "is" and insert therefor --are--.

At claim 21, column 10, line 42, after the word "estimates", delete "is" and insert therefor --are--.

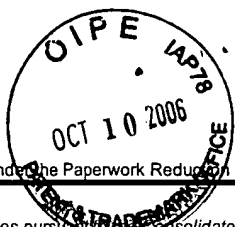
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2006 OCT 16 2006



Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

**FEE TRANSMITTAL**  
**For FY 2006**☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 100.00**Complete if Known**

Application Number	10/004,370
Filing Date	November 1, 2001
First Named Inventor	Pan et al.
Examiner Name	Jaison Joseph
Art Unit	2611
Attorney Docket No.	I-2-0187.1US

**METHOD OF PAYMENT** (check all that apply)☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_☒ Deposit Account Deposit Account Number: 09-0435 Deposit Account Name: InterDigital Communications Corporation

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**FEE CALCULATION** (All the fees below are due upon filing or may be subject to a surcharge.)**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES**

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

<b>Total Claims</b>	<b>Extra Claims</b>	<b>Fee (\$)</b>	<b>Fee Paid (\$)</b>	<b>Multiple Dependent Claims</b>
-	=	x	=	0

HP = highest number of total claims paid for, if greater than 20.

<b>Indep. Claims</b>	<b>Extra Claims</b>	<b>Fee (\$)</b>	<b>Fee Paid (\$)</b>	
-	=	x	=	0

HP = highest number of independent claims paid for, if greater than 3.

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

<b>Total Sheets</b>	<b>Extra Sheets</b>	<b>Number of each additional 50 or fraction thereof</b>	<b>Fee (\$)</b>	<b>Fee Paid (\$)</b>
-	-	100 = / 50 =	(round up to a whole number) x	=

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Request for Certificate of Corrections**Fees Paid (\$)**

100.00

**SUBMITTED BY**

Signature		Registration No. (Attorney/Agent) 57,204	Telephone 215-568-6400
Name (Print/Type)	Robert D. Leonard	Date October 6, 2006	

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.